ABSTRACT

This patent describes an ink jet printable heat transfer material with cold release properties. The invention consists of multiple layers of coatings applied to a suitable substrate, typically paper. The first optional layer coating consists typically of a pigmented coating bound together with a synthetic or natural binder and is applied in sufficient quantity to level and densify the surface of a given substrate. The second coating is applied over the first and consists of a silicone coating with a controlled surface energy. The surface energy must be such that the subsequent aqueous coatings can be applied over top with good wetting and adhesion, but low enough for an easy removal from the heat transfer after cooling. A third or wash layer is applied over the silicone release layer. This layer must easily wet and adhere to the silicone release layer so the coating does not come off during subsequent coating passes and during handling by the user. The wash layer consists of one or more thermoplastic polymers including ethylene acrylic acid, waxes, and other polymers along with dispersions of non-water soluble plasticizers and antioxidants. An ink receptive layer consists of a low binder thermoplastic organic pigmented coating containing non-water soluble plasticizers and antioxidants along with water soluble and insoluble cationic polymers and/or cationic inorganic pigments. The non-water soluble cationic materials, either organic or inorganic, aid in the retention of the dyes and reduce the wet bleed and wash out of the dyes when the transfers get wet.